Figure 1.

```
        ┌──────────────┐
        │              │
        │   Scanner    │  ─2
        │              │
        └──────┬───────┘
               │
               ▼
     256 level Greyscale Image
               │
               ▼
        ┌──────────────┐
        │  Text Object │  ─4
        │  Extraction  │
        └──────┬───────┘
               │
               ▼
         Binary  Image
               │
               ▼
        ┌──────────────┐
        │   Cluster    │
        │   related    │  ─6
        │ text objects │
        │   together   │
        └──────┬───────┘
               │
               ▼
    t objects grouped into text blo
               │
               ▼
        ┌──────────────┐
        │ Sort for the text │  ─8
        │ block most likely │
        │ to be the address │
        └──────┬───────┘
               │
               ▼
        Address candidate
               │
               ▼
        ┌──────────────┐
        │Optical Character│  ─10
        │  Recognition    │
        │     (OCR)       │
        └──────────────┘
```

**Figure 2.**

Original Image

Greyscale / Colour Image

Text Object
Extraction

Binary Image

Segmentation
by local
information

Interogate the original image
for statistical colour
measure local to each text
object

From this measure create a
segmentation for the image

Text Colour

Segmentation
by global
information

From the original image
analyse the background of
the document

Create a segmentation for
the image based on the
background colour

Background Colour

Segment Binary
Image of Text
Objects according
to the combined
global and local
segmentation
information

For each
segmented region
merge text objects
according to
distance between
letters

Text objects
grouped into text
blocks

**Figure 3.**

Original
Document Image

ω)
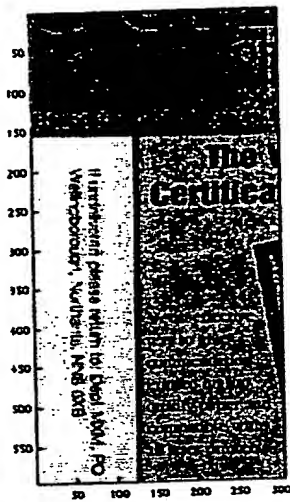
Extracted binary
text objects

b)
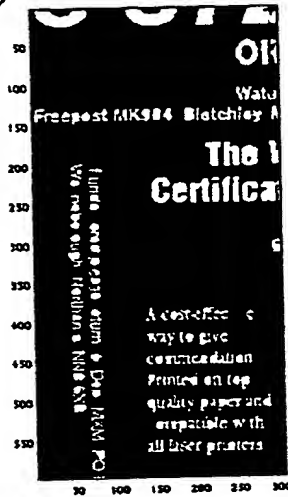
Clustering using simple
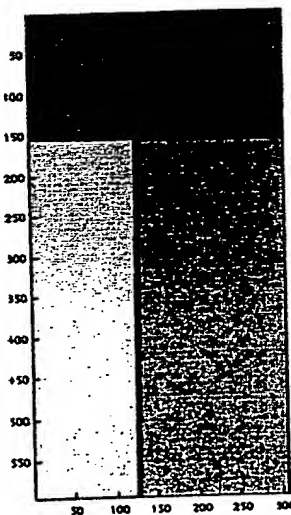merging. All text
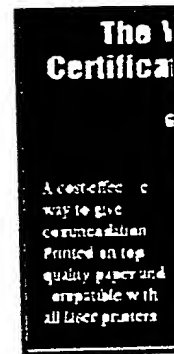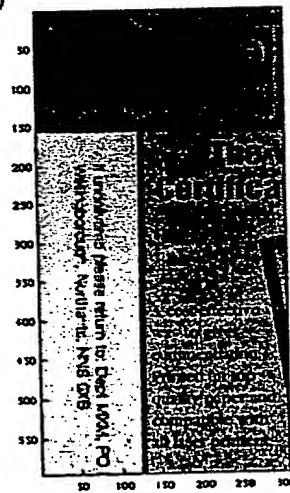objects are clustered
together

c)
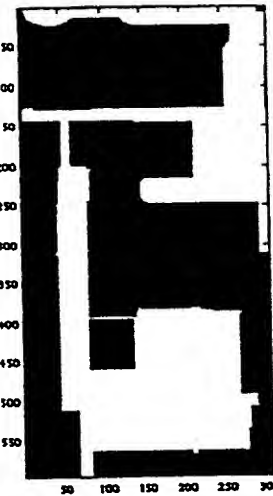
Extract
background from
original

d)

Segment according to background. For each
background region separately apply merging to the
text objects

e)

The results are clustered text objects that have
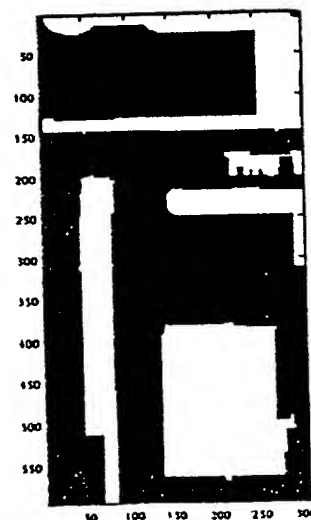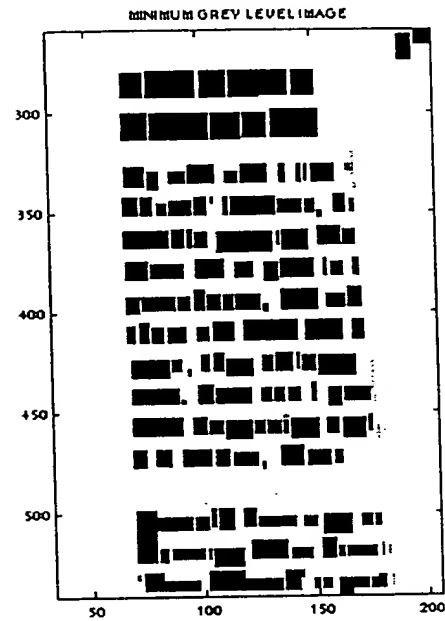consistent background.

f)

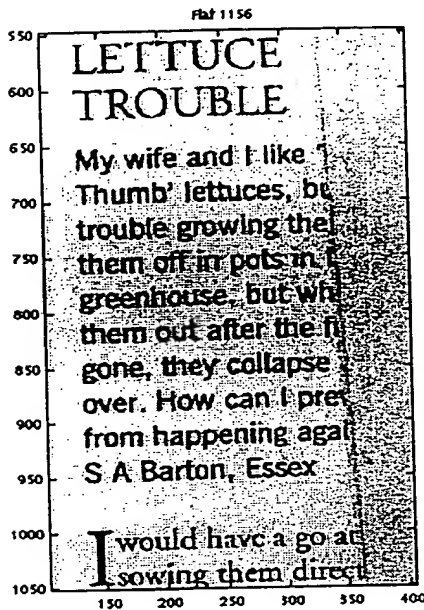**Figure 4.**

For each of the binary text objects extracted the local minimum greylevel is obtained from the original document image.

The local minimum greylevel is a measure of the text colour

Original Document Image





The minimum greylevel data is used to build a segmentation of the image. Each region in segmentation is an area of the image where the text colour is consistent.
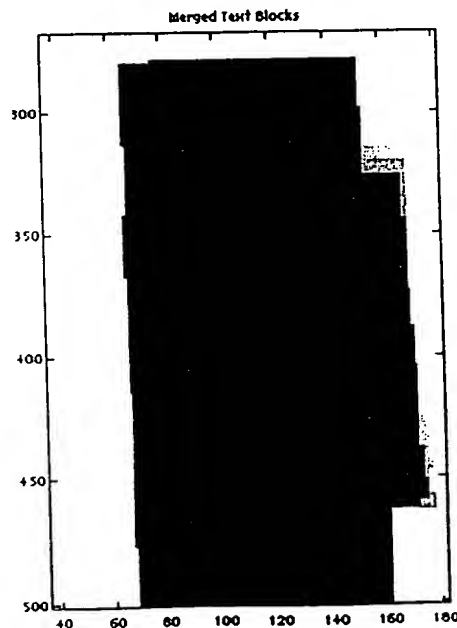
Figure 5.

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```
          ┌──────────────────┐
          │     Scanner      │  ─2
          └──────────────────┘
                   │
                   │
          256 level Greyscale Image
                   │
                   ▼
┌──────────────────┐
│   Text Object    │  ─4
│   Extraction     │
└──────────────────┘
         │
    Binary Image
```

Interogate the original image for the minimum greylevel of each text object

From this measure create a segmentation for the image

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Segmentation by local information

Text greylevel

Segmentation by global information

From the original image analyse the background of the document

Create a segmentation for the image based on the background greylevel

─14

Background greylevel

**Segment Binary Image of Text Objects according to the combined global and local segmentation information**  ─16

**For each segmented region merge text objects according to distance between letters**  ─18

! objects grouped into text blocks

**Sort for the text block most likely to be the address**  ─8

Address candidate

**Optical Character Recognition (OCR)**  ─10